What is claimed is:

1. A TV observation for endoscopes having an illumination system, at least, comprising:

a light source for emitting light to illuminate an object observed; and

a light transmitting section for transmitting the light from said light source to a distal end of an endoscope,

said light transmitting section being constructed with a single fiber and satisfying a condition:

$$\Phi_1 > \Phi_2$$

where Φ_1 is an area of an entrance end of said single fiber and Φ_2 is an area of an exit end thereof.

2. A TV observation for endoscopes having an illumination system, at least, comprising:

a light source for emitting light to illuminate an object observed; and

a light transmitting section for transmitting the light from said light source to a distal end of an endoscope,

light transmitters constituting said light transmitting section satisfying a condition:

$$NA_1 < NA_2$$

where NA_1 is an angular aperture of one of said light transmitters, including a surface at which the light from said light source is concentrated, and NA_2 is an angular aperture of a remainder of said

light transmitters, including a surface from which the light emerges toward said object.

3. A TV observation for endoscopes having an illumination system, at least, comprising:

a light source for emitting light to illuminate an object observed; and

a light transmitting section for transmitting the light from said light source to a distal end of an endoscope,

light transmitters constituting said light transmitting section satisfying a condition:

$$n_1 < n_2$$

where n_1 is the number of fiber elements of one of said light transmitters, receiving the light from said light source, and n_2 is the number of fiber elements of a remainder of said light transmitters, from which the light emerges toward said object.

4. A TV observation system for endoscopes according to any one of claims 1-3, wherein said light source includes light emitting elements such as light emitting diodes.

5. A TV observation system for endoscopes, comprising:

a light source including a combination of a plurality of light emitting elements of different emission spectra; and

light transmitters for transmitting light from said light source to a distal end of an endoscope,

said light source and a compounding optical system for compounding the light of different emission spectra from the plurality of light emitting elements being placed adjacent to said endoscope so that light combined by said compounding optical system is supplied to said light transmitters.

6. A TV observation system for endoscopes, comprising:

a light source including a combination of a plurality of light emitting elements of different emission spectra; and

light transmitters for transmitting light from said light source to a distal end of an endoscope,

said light source, a compounding optical system for compounding the light of different emission spectra from the plurality of light emitting elements, and an illuminating optical system for radiating light compounded by said compounding optical system being placed at the distal end of the endoscope.

7. A TV observation for endoscopes having an illumination system, at least, comprising:

a light source for emitting light to illuminate an object observed; and

a light transmitting section for transmitting the light from said light source to a distal end of an endoscope,

said light transmitting section being constructed with a plurality of light transmitters optically connected at a connection, and

at least one of said plurality of light transmitters being constructed with a single fiber.

8. A TV observation system for endoscopes according to claim 7, wherein said endoscope includes a soft portion having flexibility and a rigid portion having non-flexibility so that said single fiber is placed in said rigid portion and a light transmitter including a fiber bundle constructed with a plurality of optical fibers is provided in said soft portion.

9. A TV observation system for endoscopes according to claim 7, wherein said single fiber satisfies a condition:

$$\Phi_3 > \Phi_4$$

where Φ_3 is an area of an entrance end of said single fiber and Φ_4 is an area of an exit end thereof.

10. A TV observation system for endoscopes according to claim 7, wherein the light transmitting section of the illumination system includes a rigid endoscope having a lengthened and non-flexible insertion part and a light guide cable removably connected to said rigid endoscope, said light guide cable being constructed with a single fiber.

11. A TV observation system for endoscopes according to claim 7, wherein a connecting optical system for connecting a plurality of endoscopes is placed at the connection of said plurality of light

transmitters constituting the light transmitting section of said illumination system.

12. A TV observation system for endoscopes according to claim 10, wherein said light transmitters constituting the light transmitting section are constructed of optical plastic materials.

13. A TV observation system for endoscopes according to claim 11, wherein said single fiber comprises a flexible tube filled with a transparent liquid which is higher in refractive index than said flexible tube and having transparent window members mounted to openings at ends of said flexible tube.

14. A TV observation system for endoscopes according to claim 11, wherein a light transmitter for receiving the light from said light source to transmit the light to said connection optical system for connecting said plurality of endoscopes uses a fiber bundle having a fiber diameter of at least 0.1 mm and a transmission loss property up to and including 50 dB/km.

15. A TV observation system for endoscopes having an illumination system, at least, comprising:

a light source optical system having a light emitting section for emitting light and a condensing optical system for concentrating the light from the light emitting section on a light-receiving surface; and

a light transmitting section for receiving the light from said light source optical system to transmit the light to a distal end of an endoscope,

the condensing optical system of said light source optical system being defined by a magnification of 1x.

16. A TV observation system for endoscopes according to claim 15, wherein said light source optical system is defined by

$$1.0 \leqq D_1/L \leqq 1.5$$

$$0.575 \leqq | f/D_2 | \leqq 1.0$$

where D_1 is an outer diameter of the light-receiving surface, L is a dimension of the light emitting section, f is a focal length of a front lens unit constituting the condensing optical system, and D_2 is an outer diameter of each of lenses constituting the condensing optical system.

17. A TV observation system for endoscopes according to claims 12 or 16, wherein said endoscopes are cystoscopes.

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